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Endometrial Carcinoma in the South of Israel: Study of 231 Cases

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Background and Objectives: Endometrial carcinoma is the commonest female genital tract malignancy in the south of Israel. The purpose of this study was to investigate the clinical and histologic findings, treatment and outcome of patients with endometrial carcinoma in the south of Israel.

Methods: Data from the files of 231 patients with endometrial carcinoma who were managed at the Soroka Medical Center between January 1961 and December 1994 were evaluated.

Results: Endometrial carcinoma was more prevalent among Jewish as compared to Arab-Beduin women, and among Ashkenazi as compared to Sephardic Jewish women. The prevailing presenting symptom was postmenopausal bleeding and most patients (68.8%) had Stage I disease. Most patients (209/225, 92.9%) underwent surgery, 131/222 (59%) had radiotherapy and 15/214 (7%) received chemotherapy. The 5-year survival rate was 79.1% overall; 89% for Stage I, 71.7% for Stage II, 21.6% for Stage III and 0% for Stage IV; 89.8% for Grade 1, 70% for Grade 2 and 60.9% for Grade 3; 100% for adenoacanthoma, 82% for endometrioid carcinoma, 65.8% for adenosquamous carcinoma and 51.6% for papillary serous carcinoma.

Conclusions: Endometrial carcinomas are characterized by a relatively favorable prognosis with a 5-year survival of about 80%. Surgical stage, histologic differentiation and histologic subtype are sensitive predictors of survival. The mainstay of treatment is surgery with adjuvant pelvic radiotherapy when necessary. *J. Surg. Oncol. 1997;66:189–195.*

KEY WORDS: Jews; postmenopausal bleeding; surgery; staging; radiotherapy; survival

INTRODUCTION

Endometrial carcinoma is one of the most common cancers in the female. Endometrial carcinomas arise from the epithelial layer of the endometrium and account for about 90% of all uterine corpus cancers. Most endometrial carcinomas are estrogen-dependent tumors and characterized by a relatively favorable prognosis.

Among Jewish women in Israel, uterine corpus cancer is the fifth most common cancer after breast cancer, colon cancer, ovarian cancer and cutaneous malignant melanoma, and the second commonest genital tract malignancy after ovarian cancer [1,2]. Among women in the United States, endometrial carcinoma is the fourth most

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common cancer after breast, colon and lung cancers, the first most common genital tract malignancy, and the seventh leading cause of death from cancer [3–5]. It has been estimated that 2%–3% of women in the United States will develop endometrial carcinoma during their lifetimes [4]. In Israel, in 1992, 290 Jewish and 16 non-Jewish women were newly diagnosed with uterine corpus cancer, the incidence being 11.3 and 6.7 for Jewish and non-Jewish women, respectively [1]. Of the 290 Jewish women, 47 (16.2%) were born in Israel (incidence, 17.2), 174 (60%) in Europe or America (incidence, 12.5), 31 (10.7%) in Asia (incidence, 7.8), and 38 (13.1%) in Africa (incidence, 10.2) [1].

The Soroka Medical Center (SMC) in Beer-Sheva is the only tertiary care medical facility in the south of Israel that provides hospital care for a population of approximately 300,000: Jews from various ethnic origins make up about 80% of the population and Arab-Beduins account for the remaining 20%. From the inauguration of the SMC in January 1961 until December 1994, 1,031 malignancies of the female genital tract were diagnosed: 321 (31.1%) uterine corpus cancers, 319 (30.9%) uterine cervix cancers, 315 (30.6%) ovarian cancers, 51 (4.9%) vulvar cancers, 11 (1.1%) fallopian tube cancers, six (0.6%) placental cancers, three (0.3%) vaginal cancers and five (0.5%) cancers of unspecified site. In a previous study we have shown that of the 321 uterine corpus cancers, 285 (88.8%) were endometrial carcinomas and 36 (11.2%) were uterine sarcomas [6]. Of the 285 endometrial carcinomas, 54 were excluded from the study because of missing files or insufficient data. The aim of the present study was to report the clinical and histologic findings, treatment and outcome of the remaining 231 patients with endometrial carcinoma.

MATERIALS AND METHODS

The clinical and pathological records of 231 patients with endometrial carcinoma who were managed at the Soroka Medical Center, Beer-Sheva, Israel between January 1961 and December 1994 were reviewed. During the study period, endometrial carcinomas were separated into the following histologic subtypes: endometrioid, adenosquamous, adenoacanthoma, papillary serous, mucinous and clear cell. Surgical therapy usually consisted of total abdominal hysterectomy and bilateral salpingo-oophorectomy. For patients in whom, in addition to total abdominal hysterectomy and bilateral salpingo-oophorectomy, surgical staging was performed, it included peritoneal washings or collection of ascites if present and sampling of the pelvic and paraaortic lymph nodes. For those patients undergoing surgery prior to the use of the 1988 International Federation of Gynecology and Obstetrics (FIGO) surgical staging system [7], the operative records and pathology reports were thoroughly reviewed, and the patients were retrospectively assigned a surgical stage. For patients who received radiotherapy, it consisted of external megavoltage photonic irradiation employing a 10 MeV linear accelerator delivering 4,500–5,040 cGy to the whole pelvis in daily fractions of 180 cGy via an AP-PA opposed fields or four-field box technique. This was followed by two vaginal intracavitary applications of brachytherapy using Cesium-137 (each application: vaginal surface dose of 2,000 cGy) via an afterloading applicator (vaginal cylinder, Delclos). For patients who received systemic chemotherapy and/or hormone therapy, it included various regimens: cyclophosphamide, 5-fluorouracil, methotrexate, vincristine and medroxyprogesterone acetate; cyclophosphamide, Adriamycin and cisplatin (CAP); cyclophosphamide, Adriamycin and 5-fluorouracil (CAF); cisplatin, Adriamycin, 5-fluorouracil and medroxyprogesterone acetate; cyclophosphamide and Adriamycin; Adriamycin alone; cyclophosphamide alone; and medroxyprogesterone acetate alone.

TABLE I. Distribution of Patients With Endometrial Carcinoma According to Age (n = 231)

Age (years)	No. of patients	%
20–29.9	2	0.9
30–39.9	6	2.6
40–49.9	28	12.1
50–59.9	57	24.7
60–69.9	92	39.8
70–79.9	39	16.9
80–89.9	6	2.6
90–99.9	1	0.4

The following data were retrieved from the files of the patients: ethnic origin, age at initial diagnosis, pre- or postmenopausal status, parity, history of another primary malignancy, associated diseases (hypertension, diabetes mellitus and obesity), presenting symptoms, stage of disease, histopathologic findings, treatment modality (primary and adjuvant), and results of follow-up. Evaluation of statistical significance of the difference between means was performed by Student's *t*-test [8] and survival was calculated using the Kaplan-Meier method [9].

RESULTS

Ethnic origin was recorded in 204 patients: 200 (98%) were Jewish and four (2%) were Arab-Beduin. Of the 200 Jewish patients, 147 (73.5%) were of European-American origin (Ashkenazi) and 53 (26.5%) were of Asian-African origin (Sephardic). The mean age at the time of diagnosis of all 321 patients was 60.8 years (range, 26–91 years). The distribution of patients according to age group is displayed in Table I. One hundred ninety-five patients (84.4%) were at or above the age of 50 years and 36 patients (15.6%) were under the age of 50 years, with eight patients (3.5%) under the age of 40

TABLE II. Presenting Symptoms of Endometrial Carcinoma (n = 195)

Symptom	No. of patients (%)
Postmenopausal bleeding	164 (84.1%)
Excessive menstrual bleeding and/or intermenstrual bleeding	27 (13.8%)
Asymptomatic (found on hysterectomy for another reason)	4 (2.1%)

years. The menopausal status was recorded in 228 patients: 38 (16.7%) were premenopausal and 190 (83.3%) were postmenopausal. Age at the menarche and menopause was recorded in 183 patients: age at menarche ranged from 9 to 18 years (mean, 13.3 years), and age at the menopause ranged from 35 to 55 years (mean, 50.6 years). Parity was recorded in 219 patients: 37 (16.9%) were nulliparous and 182 (83.1%) had at least one child at the time of diagnosis. The mean parity of the parous patients was 2.98 (range, one to 16 children). Twenty-three patients had prior to endometrial carcinoma another primary malignancy (14 had breast cancer, 3 had colon cancer and 6 had another cancer) which had been successfully treated by surgery, radiotherapy and/or chemotherapy. Seven patients had a primary ovarian epithelial adenocarcinoma synchronously occurring with the endometrial carcinoma. Overall, 30/231 patients (13%) had either a metachronous or synchronous second primary malignancy.

The presenting symptoms were recorded in 195 patients and are detailed in Table II. Nearly 98% of patients (191/195) presented with abnormal uterine bleeding.

The distribution of patients by FIGO surgicopathologic staging and histologic differentiation (grade) is displayed in Table III. The distribution of patients in relation to histologic subtype of the endometrial carcinoma is shown in Table IV.

Information about blood pressure was available in 180 patients: 59 (32.8%) were hypertensive (blood pressure > 140/90) and 121 (67.2%) were normotensive. Information about diabetes mellitus was available in 202 patients: 43 (21.3%) were diabetic and 159 (78.7%) were not diabetic. Weight at the time of diagnosis was evaluated in 196 patients: 52 (26.5%) were obese (>25 kg above ideal body weight) and 144 (73.5%) were not obese.

Data with respect to surgery was available in 225 patients: 209 (92.9%) underwent surgery and 16 (7.1%) did not. Of the 209 patients who underwent surgery, 208 had total abdominal hysterectomy and bilateral salpingo-oophorectomy and one (with Stage II tumor) had radical Wertheim hysterectomy and bilateral salpingo-oophorectomy. Of the 209 patients who underwent surgery, in 15 (7.2%) histologic examination revealed metastatic carcinoma in the ovaries. Data with respect to pelvic lymph node sampling during primary surgery were available in 110 patients: 83 (75.5%) had pelvic lymph node sampling and 27 (24.5%) did not. Data with respect to treatment with irradiation were available in 222 patients: 131 (59%) received radiotherapy and 91 (41%) did not. Radiotherapy in all 131 patients who received it consisted of external pelvic radiotherapy followed by vaginal intracavitary brachytherapy. Radiotherapy was given postoperatively in 93 (71%) patients, preoperatively in 22 (16.8%), pre- and postoperatively in 6 (4.6%), and was the sole treatment in 10 (7.6%). Data with respect to chemotherapy were available in 214 patients: 15 (7%) received systemic chemotherapy and 199 (93%) did not. Of the 15 patients who received systemic chemotherapy, 3 received cyclophosphamide, Adriamycin and cisplatin (CAP), 3 received cyclophosphamide, Adriamycin and 5-fluorouracil (CAF), 3 received cyclophosphamide and Adriamycin, 3 received Adriamycin alone, 1 received cyclophosphamide, 5-fluorouracil, methotrexate, vincristine and medroxyprogesterone acetate, 1 received cisplatin, Adriamycin, 5-fluorouracil and medroxyprogesterone acetate, and 1 received cyclophosphamide alone. Data with respect to hormone therapy (high-dose progesterone) were available for 218 patients: 38 (17.4%) received hormone therapy (medroxyprogesterone acetate 500 mg/day) and 180 (82.6%) did not.

Forty-one patients (17.7%) died of disease: 13 (5.6%) died of persistent disease (never had a disease-free interval) and 28 (12.1%) died of recurrent disease. Of the 28 patients who died of recurrent disease, recurrence-free interval was recorded in 23 patients and ranged from 2 to 55 months (mean, 13.8 months). Recurrence site was recorded in 27 patients: pelvis, 12 patients; vagina, 5 patients; and distal site (lung and/or upper abdomen), 10 patients. Treatment modality of recurrent disease was recorded in 26 patients and included chemotherapy (9 patients), radiotherapy (8 patients), hormone therapy (6 patients) and no treatment (3 patients).

Follow-up ranged from 1 to 287 months, with 143 (61.9%) of the 231 patients followed for at least 5 years or until time of death. One hundred fifty patients (64.9%) were alive free of disease, 1 (0.4%) was alive with disease, 41 (17.7%) had died of disease, 36 (15.6%) had died of intercurrent disease and 3 (1.3%) were lost to follow-up. The actuarial 5-year and 10-year survival rates for all patients were 79.1% and 77.3%, respectively. The actuarial 5-year survival rate for Stage I was 89%; for Stage II, it was 71.7%; for Stage III, 21.6% and for Stage IV, 0%. The differences in the actuarial 5-year survival rates between Stage I and Stage III ($P < 0.001$) and between Stage II and Stage III ($P < 0.001$) were statistically significant (Fig. 1). The difference in the actuarial 5-year survival rate between Stage I and Stage

TABLE III. Distribution of Patients With Endometrial Carcinoma According to FIGO Staging and Histologic Grade (n = 231)

	Grade					
Stage	G1	G2	G3	NR[a]	Total	Literature[b]
IA	47	9	4	—	60 (26.0%)	
IB	39	23	12	2	76 (32.9%)	
IC	12	7	4	—	23 (9.9%)	
Total I	98	39	20	2	159 (68.8%)	1,269 (81%)
IIA	12	6	2	1	21 (9.1%)	
IIB	7	3	2	1	13 (5.6%)	
Total II	19	9	4	2	34 (14.7%)	172 (11%)
IIIA	7	5	3	2	17 (7.4%)	
IIIB	—	1	1	1	3 (1.3%)	
IIIC	1	1	1	—	3 (1.3%)	
Total III	8	7	5	3	23 (10.0%)	94 (6%)
Total IV	—	—	1	1	2 (0.9%)	31 (2%)
NR[a]	—	—	—	13	13 (5.6%)	
Total	125 (54.1%)	55 (23.8%)	30 (13.0%)	21 (9.1%)	231 (100.0%)	1,566 (100%)
Literature[b]	469 (29.9%)	677 (43.2%)	420 (26.6%)		1,566 (100.0%)	

[a]NR, not recorded.
[b]Surgically staged patients with endometrial carcinoma collated by Abeler and Kjorstad [12].

TABLE IV. Distribution of Patients With Endometrial Carcinoma According to Histologic Subtype (n = 231)

Histologic subtype	No. of patients (%)
Endometrioid	194 (84.0%)
Papillary serous	14 (6.1%)
Adenosquamous	10 (4.3%)
Adenoacanthoma	7 (3.0%)
Mucinous	3 (1.3%)
Clear cell	1 (0.4%)
NR[a]	2 (0.9%)
Total	231 (100.0%)

[a]NR, not recorded.

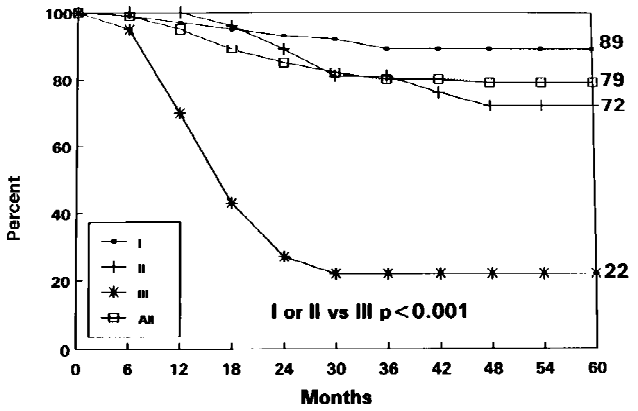

Fig. 1. Actuarial survival in relation to FIGO staging of patients with endometrial carcinoma.

II was not statistically significant ($P > 0.05$). With respect to Stage I alone, the actuarial 5-year survival rate for Stage IA was 98%, for Stage IB it was 84.5% and for Stage IC it was 76.7%. The differences in the actuarial 5-year survival rates between Stage IA and Stage IB ($P < 0.01$) and between Stage IA and Stage IC ($P < 0.05$) were statistically significant. The actuarial 5-year survival rate for Grade 1 was 89.8% for Grade 2 it was 70% and for Grade 3 it was 60.9%. The differences in the actuarial 5-year survival rates between Grade 1 and Grade 2 ($P < 0.01$) and between Grade 1 and Grade 3 ($P < 0.01$) were statistically significant (Fig. 2). The actuarial 5-year survival rate for patients with adenoacanthoma was 100%, for endometrioid carcinoma it was 82%, for adenosquamous carcinoma it was 65.8%, and for papillary serous carcinoma it was 51.6%. The differences in the actuarial 5-year survival rates between adenoacanthoma and endometrioid carcinoma ($P < 0.001$), between endometrioid carcinoma and papillary serous carcinoma ($P < 0.05$) and between adenoacanthoma and papillary serous carcinoma ($P < 0.01$) were statistically significant (Fig. 3). The differences in the actuarial 5-year survival rates between patients with diabetes mellitus and patients without diabetes mellitus (80.1% vs. 76.8%, respectively), between patients with hypertension and patients without hypertension (77% vs. 77.3%, respectively), between obese patients and non-obese patients, (76.4% vs. 80%, respectively), between patients >50 years and <50 years at the time of diagnosis (77.1 vs. 86.4%, respectively) and between patients >40 years and <40 years at the time of diagnosis (79.8% vs. 62.5%, respectively), were not statistically significant ($P > 0.05$).

DISCUSSION

We have observed that uterine corpus cancer is the most common female genital tract malignancy in the

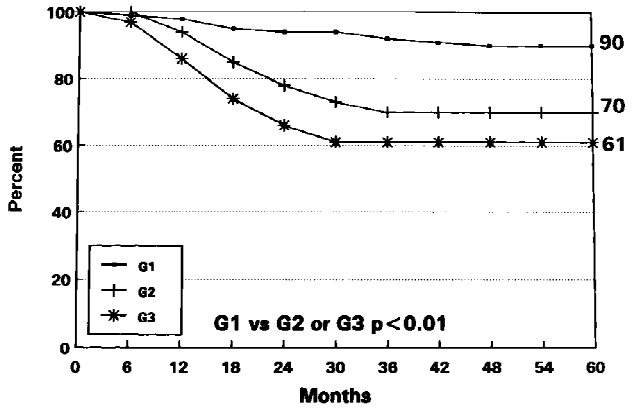

Fig. 2. Actuarial survival in relation to histologic differentiation of patients with endometrial carcinoma.

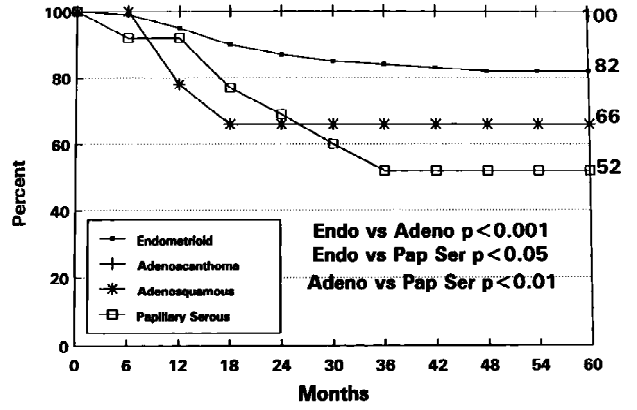

Fig. 3. Actuarial survival in relation to histologic subtype of patients with endometrial carcinoma.

south of Israel, ranking before uterine cervix cancer and ovarian cancer, and accounting for approximately one-third of all female genital tract malignancies. Although Arab-Beduins make up approximately 20% of the population in the south of Israel, we have found that only 2% of the women affected by endometrial carcinoma in the south of Israel were Arab-Beduin. Although Jews of Asian-African origin (Sephardic) make up about 60% of the Jewish population in the south of Israel, we have demonstrated that more Jewish women of European-American origin (Ashkenazi) (73.5%) than those of Asian-African origin (Sephardic) (26.5%) were affected by the disease. The same trend has been shown by Schenker and Tal [10] for endometrial carcinoma in Israel and by Schwartz et al. [11] for uterine sarcoma in Israel.

The prevailing presenting symptom of endometrial carcinoma is postmenopausal bleeding, and endometrial sampling is reliable in making the diagnosis of this disease. We, like others [3–5,12], have noticed that on the average endometrial carcinoma tends to affect women in their late fifties and early sixties, and although the age range extends from the third to the tenth decades only about 5% of the patients are under 40 years of age. In contrast to studies that have demonstrated that 20%–25% of the patients are diagnosed before menopause [5,13], in this series only about 15% of the patients were diagnosed before menopause. Contrary to studies that have indicated that endometrial carcinoma becomes more virulent with advancing age [4,12,14–17], we could not demonstrate in this study a worsening in survival with advancing age.

Nulliparity has been shown to be commonly associated with endometrial carcinoma and is considered a risk factor for developing this disease [18]. We have observed that fewer than 20% of the patients were nulliparous, while others [3] have demonstrated that 24%–31% of the patients with endometrial carcinoma were nulliparous. Obesity has been recognized as a risk factor of developing endometrial carcinoma, and an increase in mean body weight of patients with endometrial carcinoma has been noticed [5,19]. Obese women are prone to develop endometrial carcinoma because of endometrial stimulation by unopposed estrogens produced by conversion of androgens to estrogens in the peripheral fat. Contrary to studies that have shown that obesity adversely affects survival in endometrial carcinoma [19], we could not demonstrate in this study a worsening in survival with increasing weight.

Hypertension and diabetes mellitus are frequently associated with endometrial carcinomas [5]. We, like others [3], have demonstrated that approximately one-quarter of patients with endometrial carcinoma have hypertension and/or diabetes mellitus. However, high blood pressure and abnormal carbohydrate intolerance are prevalent in the elderly obese population and do not appear to be significant risk factors of endometrial carcinoma by themselves. We could not demonstrate in this study that hypertension or diabetes mellitus affects survival of patients with endometrial carcinoma.

A surgical staging system for endometrial carcinoma which includes a well defined set of surgicopathologic risk factors was adopted by FIGO in 1988 and replaced the old FIGO clinical staging system for endometrial carcinoma [5,8,20,21]. Contrary to the old FIGO clinical staging system, the new FIGO surgical staging system for endometrial carcinoma defines the true extent of the disease and correlates better with clinical outcome [22]. Vardi et al. [21] have demonstrated that during explorative laparotomy, one of every five patients with endometrial carcinoma clinically staged as confined to the uterus presented with extra-uterine spread and had to be upstaged. Thus, with use of the surgical staging, all patients with clinically unidentified extrauterine disease are eliminated from Stages I and II. With use of the surgical staging system, women whose tumors are limited to the uterus (Stages I and II) comprise about 80% of cases, whereas women with extrauterine disease (Stages III and

IV) comprise about 20% of cases (Table III) [5,12]. Within the large group of women whose tumors are limited to the uterus, recurrence risk can be stratified by histologic differentiation (grade), histologic subtype, depth of myometrial invasion, and extension to the cervix. When these criteria are employed, about two-thirds of women whose tumors are limited to the uterus have low-risk disease, while the remaining one-third have high-risk disease [5]. Women with extrauterine disease are at greatest risk for tumor recurrence and death from disease [5]. We, like others [12,20,21], have observed that the overall 5-year survival for all patients is about 80% and that there is a progressive decline in survival rate with advancing stage of disease. Wolfson et al. [20] have demonstrated by multivariate analysis that surgical stage is the strongest predictor of survival.

Histologic differentiation (grade) of endometrial carcinoma has been demonstrated to be a sensitive predictor of survival [4,12,20]. We, like others [3,12], have observed a progressive decline in survival rate with decreasing histologic differentiation. Creasman et al. [23] have demonstrated an increase in involvement of pelvic and para-aortic lymph nodes with decreasing histologic differentiation.

Attention has been given to the various histologic subtypes of endometrial carcinoma in an attempt to identify those patients who are at greater or lesser risk for recurrence. We, like others [24], have found that endometrioid carcinoma is the most common histologic subtype and, only about 10% of the patients have histologic subtypes with poor prognosis, such as adenosquamous carcinoma and papillary serous carcinoma. Like others [24], we have demonstrated that patients with adenoacanthoma have the best survival, whereas patients with adenosquamous carcinoma or papillary serous carcinoma have the worst survival.

Patients accrual in this series occurred over a prolonged period of time during which treatment approaches and modalities changed. Since the adoption of the new FIGO surgical staging system for endometrial carcinoma, the treatment approach has evolved from preoperative pelvic radiotherapy for almost all patients followed by surgery to initial surgery for almost all patients followed by postoperative adjuvant pelvic radiotherapy for selected patients [25]. Initial surgery, in addition to total abdominal hysterectomy and bilateral salpingo-oophorectomy, should include the following staging procedures: peritoneal washings or collection of ascites if present, and sampling of pelvic and paraaortic lymph nodes [26]. Since the adoption of the new FIGO surgical staging system for endometrial carcinoma, we have staged with pelvic lymphadenectomy most patients undergoing surgery including those with well differentiated tumors clinically confined to the uterus and minimally penetrating the myometrium. This is in contrast to some authors [4,27,28] who have recommended that clinically negative pelvic and para-aortic lymph nodes should be sampled only in patients with one or more of the following high-risk factors: 1) tumor histology: clear cell, papillary serous, squamous or grade 3 endometrioid; 2) myometrial invasion > 1/2; 3) isthmus-cervix extension; 4) tumor size > 2 cm; 5) extrauterine disease. The extirpation of the ovaries during primary surgery is justified since endometrial carcinomas have a propensity for spreading to the ovaries and a stimulating effect of estrogen from the retained ovaries on residual tumor has been entertained [5].

With respect to chemotherapy and hormone therapy for advanced or recurrent endometrial carcinoma, no uniform treatment scheme was applied in the 34-year period assessed in this study. It has been observed that endometrial adenocarcinoma, like ovarian adenocarcinoma, is a cisplatin and Adriamycin chemotherapy-sensitive tumor, but long-term progression-free survival remains low [29]. Recently, paclitaxel has been shown to be clearly active in endometrial carcinoma and the ultimate role of paclitaxel and its combination with cisplatin in the management of advanced or recurrent endometrial carcinoma awaits further investigation [30].

We, like others [31], have observed that recurrent disease develops in about 11%–12% of the patients. Most recurrences were seen in patients with high-risk histology, including Grades 2 and 3 endometrioid carcinoma or variant cell types such as adenosquamous carcinoma and papillary serous carcinoma.

In conclusion, endometrial carcinoma is the commonest female genital tract malignancy in the south of Israel. It is characterized by a relatively favorable prognosis with an overall 5-year survival rate around 80%. It is more prevalent among Jewish women as compared to Arab-Beduin women, and among Ashkenazi Jewish women as compared to Sephardic Jewish women. The prevailing presenting symptom is postmenopausal bleeding and most of the patients present with an early-stage disease. Stage of disease, histologic differentiation and histologic subtype are significant predictors of survival. Treatment of choice is initial surgery consisting of total abdominal hysterectomy and bilateral salpingo-oophorectomy, including staging procedures. Pelvic radiotherapy is reserved as a postoperative adjuvant therapy for those patients with poor pathologic prognostic factors and involves the use of both external pelvic radiotherapy and brachytherapy. Chemotherapy and/or hormone therapy is reserved as a salvage therapy for those patients with advanced or recurrent disease.

REFERENCES

1. Israel Cancer Registry. Cancer in Israel Facts and Figures 1992. State of Israel, Ministry of Health, Department of Epidemiology.
2. Israel Cancer Registry. Cancer in Israel Facts and Figures 1987

and 1988. State of Israel, Ministry of Health, Department of Epidemiology.
3. Creasman WT, Weed JC Jr: Carcinoma of the endometrium (FIGO Stages I and II): Clinical features and management. In Coppleson M, Monaghan JM, Morrow CP, Tattersall MHN (eds): ''Gynecologic Oncology. Fundamental Principles and Clinical Practice.'' Edinburgh: Churchill Livingstone, 1992, pp 775–789.
4. Lurain JR: Uterine cancer. In Berek JS, Adashi EY, Hillard PA (eds): ''Novak's Gynecology.'' Baltimore: Williams and Wilkins, 1996, pp 1057–1110.
5. Burke TW, Fowler WC Jr, Morrow CP: Clinical aspects of risk in women with endometrial carcinoma. J Cell Biochem Suppl 1995; 23:131–136.
6. Piura B, Rabinovich A, Yanai-Inbar I, et al.: Uterine sarcoma in the south of Israel: Study of 36 cases. J Surg Oncol 1997;64:55–62.
7. Shepherd JH: Revised FIGO staging for gynaecological cancer. Br J Obstet Gynaecol 1989;96:889–892.
8. Swinscow TDV: ''Statistics at Square One.'' London: British Medical Association, 1983.
9. Kaplan EL, Meier P: Non-parametric estimation from incomplete observations. J Am Stat Assoc 1958;53:457–481.
10. Schenker JG, Tal J: Adenocarcinoma of endometrium in Israel 1960–1968. Cancer 1980;46:2752–2758.
11. Schwartz Z, Dgani R, Lancet M, Kessler I: Uterine sarcoma in Israel: A study of 104 cases. Gynecol Oncol 1985;20:354–363.
12. Abeler VM, Kjorstad KE: Endometrial adenocarcinoma in Norway. A study of a total population. Cancer 1991;67:3093–3103.
13. Currie JL: Malignant tumors of the uterine corpus. In Rock JA, Thompson JD (eds): ''Te Linde's Operative Gynecology.'' Philadelphia: Lippincott-Raven, 1997, pp 1501–1555.
14. Aziz H, Hussain F, Edelman S, et al.: Age and race as prognostic factors in endometrial carcinoma. Am J Clin Oncol 1996;19:595–600.
15. Hoffman K, Nekhlyudov L, Deligdisch L: Endometrial carcinoma in elderly women. Gynecol Oncol 1995;58:198–201.
16. Hernandez E, DeFilppis D, O'Connell K, et al.: Poorer prognosis in older patients with endometrial adenocarcinoma.
17. Partridge EE, Shingleton HM, Menck HR: The National Cancer Data Base report on endometrial cancer. J Surg Oncol 1996;61: 111–123.
18. Albrektsen G, Heuch I, Tretli S, Kvale G: Is the risk of cancer of the corpus uteri reduced by a recent pregnancy? A prospective study of 765,756 Norwegian women. Int J Cancer 1995;61:485–490.
19. Anderson B, Connor JP, Andrews JL, et al.: Obesity and prognosis in endometrial cancer. Am J Obstet Gynecol 1996;174:1171–1178.
20. Wolfson AH, Sightler SE, Markoe AM, et al.: The prognostic significance of surgical staging for carcinoma of the endometrium. Gynecol Oncol 1992;45:142–146.
21. Vardi JR, Tadros GH, Anselmo MT, Rafla SD: The value of exploratory laparotomy in patients with endometrial carcinoma according to the new International Federation of Gynecology and Obstetrics staging. Obstet Gynecol 1992;80:204–208.
22. Lin HH, Chen CD, Chen CK, et al.: Is total abdominal hysterectomy with bilateral salpingo-oophorectomy adequate for new FIGO stage I endometrial carcinoma? Br J Obstet Gynaecol 1995; 102:148–152.
23. Creasman WT, Morrow CP, Bundy BN, et al.: Surgical pathologic spread patterns of endometrial cancer. Cancer 1987;60:2035–2041.
24. Huang SJ, Berek JS, Fu YS: Pathology of endometrial carcinoma. In Coppleson M, Monaghan JM, Morrow CP, Tattersall MHN (eds): ''Gynecologic Oncology. Fundamental Principles and Clinical Practice.'' Edinburgh: Churchill Livingstone, 1992, pp 753–774.
25. Karasek K, Faul C: Changing concepts in the management of endometrial cancer. Oncology Huntingt 1996;10:1099–1106.
26. Chuang L, Burke TW, Tornos C, et al.: Staging laparotomy for endometrial carcinoma: assessment of retroperitoneal lymph nodes. Gynecol Oncol 1995;58:189–193.
27. Brinton LA, Berman ML, Mortel R, et al.: Reproductive, menstrual and medical risk factors for endometrial cancer: Results from case control study. Am J Obstet Gynecol 1992;167:1317–1325.
28. Boronow RC, Morrow CP, Creasman WT, et al.: Surgical staging in endometrial cancer: Clinical-pathologic findings of a prospective study. Obstet Gynecol 1984;63:825–832.
29. Cornelison TL, Baker TR, Piver MS, Driscoll DL: Cisplatin, adriamycin, etoposide, megestrol acetate versus melphanan, 5-fluorouracil, medroxyprogesterone acetate in the treatment of endometrial carcinoma. Gynecol Oncol 1995;59:243–248.
30. Thigpen T, Vance RB, Khansur T: The platinum compounds and paclitaxel in the management of carcinomas of the endometrium and uterine cervix. Semin Oncol 1995;22(Suppl 12):67–75.
31. Reddoch JM, Burke TW, Morris M, et al.: Surveillance for recurrent endometrial carcinoma: development of a follow-up scheme. Gynecol Oncol 1995;59:221–225.